

WHAT IS CLAIMED IS:

1. A softswitch interconnecting networks of different transport protocols, comprising:

5 a signaling agent coupled to the networks and operable to receive incoming signaling messages, translate the incoming signaling messages to a call model event, and route the call model event; and

10 a call agent in communication with the signaling agent and operable to receive the call model event, request outgoing resources for establishing data sessions, generate outgoing signaling messages, and send the outgoing signaling messages to the signaling agent, the signaling agent further terminating the data sessions on the requested outgoing resources.

15 2. The softswitch, as set forth in claim 1, further comprising a resource manager operable to receive outgoing resource requests from the call agent, and provide outgoing resource availability responses to the
20 call agent.

25 3. The softswitch, as set forth in claim 1, further comprising a network directory server operable to receive requests for routing information to establish data sessions from the call agent, and provide routing information to the call agent.

30 4. The softswitch, as set forth in claim 1, further comprising a network directory server operable to receive requests for address resolution to establish data sessions from the call agent, and provide address resolution responses to the call agent.

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5 5. The softswitch, as set forth in claim 1,
further comprising a network gateway operable to receive
requests for address locations of called parties in
external networks to establish data sessions from the
call agent, and provide the address locations to the call
agent.

10 6. The softswitch, as set forth in claim 1,
wherein the signaling agent comprises:
a logic control executing a logic control program
and operable to process signaling messages of a
particular signaling protocol;
a codec specialized in the signaling protocol of an
access network and operable to parse and format signaling
15 messages according to the signaling protocol; and
a filter operable to filter and route signaling
messages from the codec to the logic control.

20 7. The softswitch, as set forth in claim 6,
wherein the signaling protocol is SS7.

25 8. The softswitch, as set forth in claim 6,
wherein the signaling protocol is session initiation
protocol.

9. The softswitch, as set forth in claim 6,
wherein the signaling protocol is H.323.

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10. The softswitch, as set forth in claim 1,
further comprising a network gateway which comprises:

a logic control executing a logic control program
and operable to process messages of a particular
transport protocol;

a codec specialized in the transport protocol of a
media gateway and operable to parse and format the
messages according to the transport protocol; and

a filter operable to filter and route signaling
messages from the codec to the logic control.

11. The softswitch, as set forth in claim 10,
wherein the transport protocol is media gateway control
protocol.

12. The softswitch, as set forth in claim 10,
wherein the transport protocol is Internet protocol
device control protocol.

13. The softswitch, as set forth in claim 10,
wherein the transport protocol is simple gateway control
protocol.

14. The softswitch, as set forth in claim 1,
wherein the networks comprise a public switched telephone
network.

15. The softswitch, as set forth in claim 1,
wherein the networks comprise a packet network.

16. The softswitch, as set forth in claim 1,
wherein the networks comprise a wireless network.

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17. The softswitch, as set forth in claim 1, wherein the call agent comprises a protocol-independent logic engine operable to execute a function-specific logic control program.

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18. The softswitch, as set forth in claim 1, further comprising a billing sub-system in communication with the call agent and operable to generate call detail records.

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19. A method of internetworking between networks of different transport protocols, comprising:

receiving signaling messages from a signaling network;

5 translating the signaling messages into call events;
processing the call events;

requesting outgoing resources for establishing data sessions with devices coupled to a transport network;

10 terminating the data sessions on the requested outgoing resources.

20. The method, as set forth in claim 19, further comprising requesting for and receiving routing information to establish the data sessions.

15 21. The method, as set forth in claim 19, further comprising requests for and receiving address resolution to establish the data sessions.

20 22. The method, as set forth in claim 19, further comprising requesting for and receiving address locations of called parties in external networks to establish the data sessions.

25 23. The method, as set forth in claim 19, further comprising:

executing a logic control program and processing the signaling messages of a particular signaling protocol;
and

30 parsing and formatting signaling messages according to the signaling protocol.

35 24. The method, as set forth in claim 19, further comprising receiving and transmitting SS7 signaling messages.

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25. The method, as set forth in claim 19, further comprising receiving and transmitting session initiation protocol signaling messages.

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26. The method, as set forth in claim 19, further comprising receiving and transmitting H.323 signaling messages.

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27. The method, as set forth in claim 19, wherein translating the messages comprises:

executing a logic control program and processing messages of a particular transport protocol;

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parsing and formatting the messages according to the transport protocol; and

filtering and routing the translated messages.

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28. The method, as set forth in claim 19, further comprising receiving and transmitting media gateway control protocol messages.

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29. The method, as set forth in claim 19, further comprising receiving and transmitting Internet protocol device control protocol messages.

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31. The method, as set forth in claim 19, further comprising receiving and transmitting public switched telephone network messages.

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32. The method, as set forth in claim 19, further comprising receiving and transmitting packet network messages.

5 33. The method, as set forth in claim 19, further comprising receiving and transmitting wireless network messages.

10 34. The method, as set forth in claim 19, further comprising using a protocol-independent logic engine to execute a function-specific logic control program to process the call events.

15 35. The method, as set forth in claim 19, wherein processing the call events comprises generating call detail records.

20 36. The method, as set forth in claim 19, further comprising verifying an incoming circuit is in a valid state.

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37. A softswitch interconnecting networks of different transport and signaling protocols, comprising:

a signaling agent coupled to the networks and operable to receive incoming signaling messages, translate the incoming signaling messages to a call event, and route the call event;

a call agent in communication with the signaling agent and operable to receive the call event, verify the validity of incoming circuits of inbound calls, generate a request for an outgoing resources for establishing data sessions;

a network directory server in communication with the call agent and operable to receive the request for an outgoing resource, and provide information on the outgoing resource;

a network gateway agent operable to receive a request to establish a data session on the selected outgoing resource, and set up an open session; and

the call agent operable to terminate the data sessions on the requested outgoing resources, and generate a call detail record in response to disconnecting the data session.

38. The softswitch, as set forth in claim 37, further comprising a resource manager operable to receive outgoing resource requests from the call agent, and provide outgoing resource availability responses to the call agent.

39. The softswitch, as set forth in claim 37, wherein the network directory server is further operable to receive requests for address resolution to establish data sessions from the call agent, and provide address resolution responses to the call agent.

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40. The softswitch, as set forth in claim 37, wherein the signaling agent comprises:

a logic control executing a logic control program and operable to process signaling messages of a particular signaling protocol;

a codec specialized in the signaling protocol of an access network and operable to parse and format signaling messages according to the signaling protocol; and

a filter operable to filter and route signaling messages from the codec to the logic control.

41. The softswitch, as set forth in claim 40, wherein the signaling protocol is SS7.

42. The softswitch, as set forth in claim 40, wherein the signaling protocol is session initiation protocol.

43. The softswitch, as set forth in claim 40, wherein the signaling protocol is H.323.

44. The softswitch, as set forth in claim 37, wherein the network gateway comprises:

a logic control executing a logic control program and operable to process messages of a particular transport protocol;

a codec specialized in the transport protocol of a media gateway and operable to parse and format the messages according to the transport protocol; and

a filter operable to filter and route signaling messages from the codec to the logic control.

45. The softswitch, as set forth in claim 44, wherein the transport protocol is media gateway control protocol.

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46. The softswitch, as set forth in claim 44,
wherein the transport protocol is Internet protocol
device control protocol.

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47. The softswitch, as set forth in claim 44,
wherein the transport protocol is simple gateway control
protocol.

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48. The softswitch, as set forth in claim 37,
wherein the networks comprise a public switched telephone
network.

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49. The softswitch, as set forth in claim 37,
wherein the networks comprise a packet network.

50. The softswitch, as set forth in claim 37,
wherein the networks comprise a wireless network.

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51. The softswitch, as set forth in claim 37,
wherein the call agent comprises a protocol-independent
logic engine operable to execute a function-specific
logic control program.

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